

## BIBLIOGRAPHICAL NOTICES.

**ARTICLE XV.** *Remarks on the Pathology of the Typhoid Fever of New England, as exhibited in its Physical Signs and Anatomical Appearances.* By ENOCH HALE, M. D., Attending Physician to the Massachusetts General Hospital. Boston: 1839, 8vo, pp. 77.

It is a useful and interesting task occasionally to look back and take a view of what has been done for the advancement of any particular branch of medical science. This is especially the case in regard to fever, inasmuch as the speculations and hypotheses concerning its nature, which formerly constituted our sole method of philosophizing on the subject, have now given place, thanks to modern and more accurate methods of investigation, to a careful study of the phenomena presented during life and the lesions exhibited after death.

Dr. Jackson was the first to call the attention of American physicians to the work of Petit and Serres, which he reviewed in 1815, and he was also one of the first who called attention to the labours of Louis. In his report published last year, he gives the results of 303 cases of undoubted typhoid fever, and of sixty-five others which he considered doubtful. These cases occurred between the opening of the hospital in 1821, and January, 1835, when Dr. Jackson ceased to attend the institution. It was not, however, until 1833, as he tells us, that the same degree of strictness was introduced into the records that has marked the investigations of Louis. The conclusion Dr. Jackson formed from the review of these cases was, that the continued fever of Boston, which has been the same since 1833 as before, is the same as that described by Louis.\*

Dr. Hale in the present report has pursued the investigations of Dr. Jackson, commencing in 1833 and brought them down to the present year, so as to obtain a view of the results of all the cases since the records were rendered more strict; and to these he has added the post mortem examinations of fifteen cases occurring in private practice.

Dr. Hale is well qualified for pursuing these inquiries, both from his situation as physician of the hospital, and from his having directed his attention at an early period to the subject of fever. His history of the "Spotted Fever," published in 1818, is well known to the profession.

Dr. Hale follows the example of Dr. Jackson and Dr. Gerhard, in applying the term *typhoid* to the continued fever of New England and Paris, while *typhus* is used to designate that of Great Britain.

The distinctive marks of typhoid fever to which attention has been called, are *meteorism*, *enlargement of the spleen*, *rose spots* on the abdomen, and *sudamina*.

Out of 197 cases, *meteorism* was found in 130. In twenty-four there was nothing in the record to show whether it was present or absent; and in forty-three it is expressly stated to have been wanting.

Enlargement of the spleen Dr. Hale does not consider of much value as a pathognomonic sign. This organ is occasionally felt below the ribs, or by pressing the fingers under the cartilages during a full inspiration. In many cases it cannot be felt even when examination after death shows it to be much enlarged.

\* See this Journal for November, 1838, p. 131.

Where it is felt, however, it may be regarded as a pretty sure proof of the nature of the disease. It was felt in nineteen cases, not felt in twenty-one, and not noted in 157.

Rose spots are recorded in 177 out of the 197 cases. In a greater part of the remaining twenty, sufficient attention does not appear to have been paid to them to render it certain that they did not exist. Most of the omissions occurred in the earlier part of the period above specified, before the full importance of this diagnostic mark was appreciated. Dr. Hale considers them as a constant attendant upon the disease.

Sudamina were noticed in seventy-five cases, and probably existed in many in which they were not recorded. It is stated that they were not found in fifteen cases.

Dr. Hale proceeds to the inquiry, whether these marks are found in other acute diseases? The whole number of these which had occurred in the hospital was 159, omitting those in which there was primary local disease. Meteorism is recorded in nine. The spleen was felt below the cartilages in none; rose spots were observed in none; sudamina in eight. Allowance, he remarks, should be made for the greater attention with which these appearances were sought for in fever than in other acute diseases. The conclusions are, then, that meteorism is rarely found in other diseases, while it is quite common, but not entirely constant, in typhoid fever. Enlargement of the spleen, when felt pretty strongly, indicates the disease. Rose spots are found in nearly every case of this; but not in any other disease. Sudamina are of little value as a diagnostic sign. Although oftener found in this than in other diseases, they are neither constant nor are they limited to typhoid fever.

The whole number of post mortem examinations given by Dr. Hale is thirty-three. The head was examined in fourteen. There was some effusion of serum in the arachnoid or pia mater in ten cases; an increase of bloody points in the cerebrum with other marks of fulness of the blood vessels in four; glands of Pacchioni enlarged in two; and three were healthy. These appearances are not peculiar to this disease, but are found quite as often in many others.

The passages in the neck were examined only in seven cases. Ulceration of the epiglottis was observed in one case, and ulceration of the tongue in two. In the remaining four all the passages were healthy.

The state of the lungs was noticed in thirty-one cases. In eighteen they, as well as the pleura, were healthy; in three there was effusion into the cavity of the pleura; in eight hepatization more or less of the lungs, sometimes in one or two small masses; at others extensive; and, in one or two cases, in both lungs. In two the lungs were engorged with blood; in one infiltrated with serum; and in two there was more or less emphysema. The heart was examined in twenty-eight cases. In three there was somewhat more than the usual quantity of serum in the pericardium. The structure of the heart was healthy in all, except rather flaccid in two or three. In about the same number there was a little thickening of the mitral and semilunar valves.

In the abdomen the morbid changes were more important. The peritoneum was sometimes found extensively and highly inflamed. In the greater number, it was not particularly affected. The condition of the stomach is noted in thirty-two cases. In seventeen it was nearly or quite healthy. In six there were ulcerations in the mucous membrane, in one case perforating it; in the remaining five small and superficial; in five the mucous membrane was softened more or less extensively, but in no case thickened; and in five it was somewhat mame-lonated.

In the small intestines the mucous membrane generally was healthy, except that it was often of a deep-red colour in the lower part of the ileum, and sometimes a little softened.

Dr. Hale next speaks of the appearance of Peyer's glands in their natural state, and describes the changes produced by disease. He notices four classes of appearances, according to the stage of disease in which the patient has died. When this occurs early, there is a well defined uniform thickening of the altered

patch, commonly of a light-red colour over the whole surface, sometimes surrounded by a deeper red line; the intervening surface being softened and studded with numerous minute, white, opaque points. Twenty or more of these patches are often discovered. They are most numerous at the lower extremity of the small intestines, and the disease is always more advanced in those near the cœcum than at a greater distance.

In a somewhat later stage ulcerations are observed in some of the diseased patches. They are of different sizes, sometimes quite small, at others occupying nearly the whole patch. They are situated in the submucous cellular coat of the intestine, laying bare and sometimes destroying the muscular coat; in some instances they penetrate the peritoneal coat. In these there is the same evidence of greater progress in the patches near the cœcum. Not unfrequently there is a particularly large and deep ulcer almost or quite in the cœcal valve, while some elevated patches, higher up, are free from ulceration.

In cases where the patient has relapsed after a temporary convalescence, when he dies of pneumonia, or other cause, after a long struggle, the ulcerations of Peyer's glands are found cicatrized. The margin is of a bluish or grayish colour, and sometimes the colour is diffused over the whole patch, and a delicate mucous membrane is found extended over the cicatrized surface. The cicatrization is found further advanced near the termination of the ileum than above, showing, as in the other cases, that the affection of the glands began in this part.

The fourth class of appearances are formed by perforation of the intestine. This is of various depths, sometimes it takes place in the peritoneal coat, and the contents of the intestine are poured into the peritoneal cavity, producing violent inflammation and speedy death. This termination is not confined to cases that have been previously remarkably severe. It often occurs in those at first of a mild character. The patient has been walking about the room with a confidence of a speedy recovery, when he has been suddenly seized with excruciating pain in the abdomen, and died in a few hours. There are no intimations by which the danger of this occurrence can be foreseen.

In one or more of these modifications, an affection of Peyer's glands is found in every case of typhoid fever. Out of the thirty-three cases, nine presented only the first stage of this affection; thickening, softening, and a red surface. In eighteen, while some of the diseased patches were in this stage, others, near the lower extremity of the intestine, had passed into ulceration; the ulcers varying in number from two or three to twenty or more. In three some of the ulcers near the cœcum had been cicatrized, and in three the intestine was perforated. The perforation was in no instance in the ulcer nearest the cœcal valve, and in one case it was at a distance of four inches. The periods when these changes occur are various. In two, ulcerations were found before the twentieth day, while in one the disease had continued four months, and there were but three ulcers and no cicatrization.

The solitary glands in the small intestines were enlarged in fifteen cases. In eleven, they were not visible; and, in seventeen, they are not mentioned in the record; probably they were not enlarged. The affection of these glands was chiefly found in the lower portion of the intestine. In the large intestines the solitary glands were found enlarged in five cases; healthy in seven, and in six they are not mentioned. In two, the mucous membrane was softened. In seventeen, ulcers quite numerous were found in the cœcum or first part of the colon. These ulcerations were not large, like many of those in Peyer's glands, but small and distinct. In one case, in which the immediate cause of death was hemorrhage from the bowels, a firm coagulum of blood was found hanging from an ulcer in the cœcum, showing the source of the hemorrhage. In this, and many other cases of hemorrhage, both the large and small intestines contained a considerable quantity of blood.

The condition of the mesenteric glands corresponded to the state of disease of the intestinal canal. Those glands which belonged to the healthy portion of the

intestine were healthy, while those of the diseased part were enlarged, red, and infiltrated. At later stages they were found softened and sometimes suppurated.

The liver was examined in twenty-seven cases; its structure was healthy in fourteen; more or less soft and friable in ten; hard in one; congested in one, and in one the serous coat of the left lobe was highly inflamed and covered with a coating of lymph.

The spleen was large in twenty-one cases. In some it was enlarged to twice or thrice the natural size, and then commonly soft in its internal texture, breaking down by pressure into a sort of thick, dark red fluid. In seven cases it was of its natural size; in two small; in two its condition was not noted.

Dr. Hale gives an abridged history of four cases, one in illustration of each of the forms in which he has described Peyer's glands as affected.

He next proceeds to inquire as to what extent the same morbid appearances are to be found in other acute diseases. For this purpose he examined the records of 159 cases of acute diseases at the hospital. Of these eighteen were fatal, and fifteen were examined after death. Sufficient data were not found for a comparison of the state of the head, lungs and heart. The stomach was noted as healthy, or nearly so, in seven cases; the mucous membrane was mamelinated in three, and in five its condition was not particularly described.

The state of Peyer's glands is referred to in eleven cases, in all of which they were healthy. In two the organs of the abdomen are declared healthy; in two no reference is made to them. Dr. Hale mentions six other cases of similar diseases, in all of which they were healthy. He states that there is no other disease except typhoid fever in which these glands have been found diseased in the adult. In phthisis they are the seat of ulceration and of tubercular deposits, but the appearances do not resemble the thickening and ulceration of typhoid fever.

In teething children the glands are affected in precisely the same manner as in typhoid fever. Dr. Hale has seen six cases in his practice, of children, who have died during teething, in which the glands were thus affected.

In four of the fifteen cases of acute disease, before referred to, the solitary glands of the small intestines are noticed as enlarged; and in one they were ulcerated in the cæcum. In the remaining eleven they are not mentioned, probably because no disease was observed in them. The spleen was mentioned in three cases, in four it was small, and in three of natural size or healthy. In one case where it was large, and in two where it was small, its texture was soft. The liver was examined in all the fifteen cases. It was healthy in seven, and somewhat soft or friable in eight. In three it was large, in three small, and in nine its size was not noticed as unnatural. The other organs furnished no points of comparison to demand attention.

From this statement it appears that the spleen, stomach and liver, were affected in a less proportion of cases than occurred in the observations of Louis. Dr. Hale, however, considers the only essential difference between the fever of Paris and New England, to be in the greater frequency of diarrhoea in the latter. This difference is, however, the same in other acute diseases.

The fever of the continent of Europe appears, by the report of various observers, to be the same with that of Paris.

Dr. Hale next comes to a comparison of the typhoid fever, with the continued fever of Great Britain. He observes that as so large a portion of our medical literature is derived from England, it is more important for us to know whether diseases similarly designated in the two countries correspond, or whether they are different.

The labours of Louis have met with comparatively little attention in England. The few observers who undertook the investigation, found that the results did not correspond with those of Louis, and thence concluded, not that the fever of Great Britain was different from that of Paris, but that the observations of the French physician were erroneous, or that the lesions noted were merely accidental. Within the last year, indeed, more attention seems to have been paid to the subject.

Dr. Hale enters into a full examination of what has been furnished by English observers upon this subject. The result of this examination goes to show that the fever described by Tweedie, Southwood Smith, &c., and by the earlier English writers, is the same with that of Paris; but that within the last eight or nine years a new epidemic has appeared there, commencing in Ireland and Scotland, and soon extending over England. This fever is more sudden in its onset, more violent in its symptoms, and more rapid in its course than the typhoid. In a large proportion of cases it is destitute of the characteristic affection of Peyer's glands. It corresponds, in short, with the affection that has been described by Dr. Gerhard as epidemic in the Philadelphia Almshouse in 1836.\*

Dr. Bright seems to have been the first English writer who noticed the affection of the glands of the ileum in fever. He gave an account of ten fatal cases, with dissections and figured illustrations of the morbid appearances in the several stages of the disease. These cases occurred in Guy's Hospital in 1825, 1826 and 1827, and were published in his Reports of Medical Cases, in 1829. They seem to have met with little attention. There is no doubt, however, that they were genuine cases of typhoid fever.

Dr. Hale alludes to a question of great practical importance. This is, can we always distinguish the two continued fevers from each other by their symptoms during life? It appears that Dr. Lombard and other observers, who were familiar with the typhoid fever of Paris, were much astonished at finding cases in England, of what appeared to them genuine typhoid fever, but which show none of the post mortem appearances which they had confidently expected; so much so that Dr. Lombard, under the first impulse, abandoned the opinions formed upon six years' investigations, and concluded that typhus fever was a general disease affecting the whole constitution, rather than a malady depending upon any local inflammation or any change of structure.

It appears, then, from the investigations of these and other accurate observers, that in the present state of our knowledge at least, the fever called *typhoid* or *dothinenteritis*, cannot always be distinguished during life from that designated *typhus*. It is not impossible that further inquiries may show other marks of distinction, which are not now recognized. As it is, however, the general characteristics of the two are such that they can be, in most cases, distinguished.

The most important characteristic of the French and New England fever, consists undoubtedly in the affection of Peyer's glands. But can we consider this affection, which in many cases is slight, as sufficient cause for the whole disturbance of the system and for the fatal result in many cases? This seems to be the opinion of Louis, and it is decidedly expressed by many of his followers. The cause seems to be an inadequate one, and it is more rational to conclude, as does Dr. Hale, that it is an effect, like the general disturbances of the system, of some cause at present unknown.

If professional men throughout our country would imitate the example given them by Drs. Jackson, Hale and Gerhard, we might soon have such information from all quarters as would go far to decide this question, and at the same time give us great additional knowledge on the subject of fever.

With regard to the treatment of the disease, the result of the cases at the Massachusetts hospital, for the last two or three years, have been more in favour of a mild treatment and less in favour of an active course, than was approved by those up to the time to which Dr. Jackson's report extended.

In conclusion, we think the report of Dr. Jackson and these "Remarks" of Dr. Hale ought to be in the hands of every member of the profession. They deserve our admiration for the impartiality and freedom from hypothesis with which their results are communicated, and our gratitude for the labour and accuracy with which their investigations have been pursued.

E. W.

\* Vide vol. xix, p. 289, and vol. xx, p. 289, of this Journal.